

Service locations may vary to meet various house configurations.

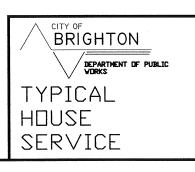
Water service shall be placed on the down hillside of sanitary sewer service and with 10' min. separation.

No more than two 1/8 bends (90° total) shall be permitted in any sanitary sewer service.

There shall be at least 10' separation between water meter pits.

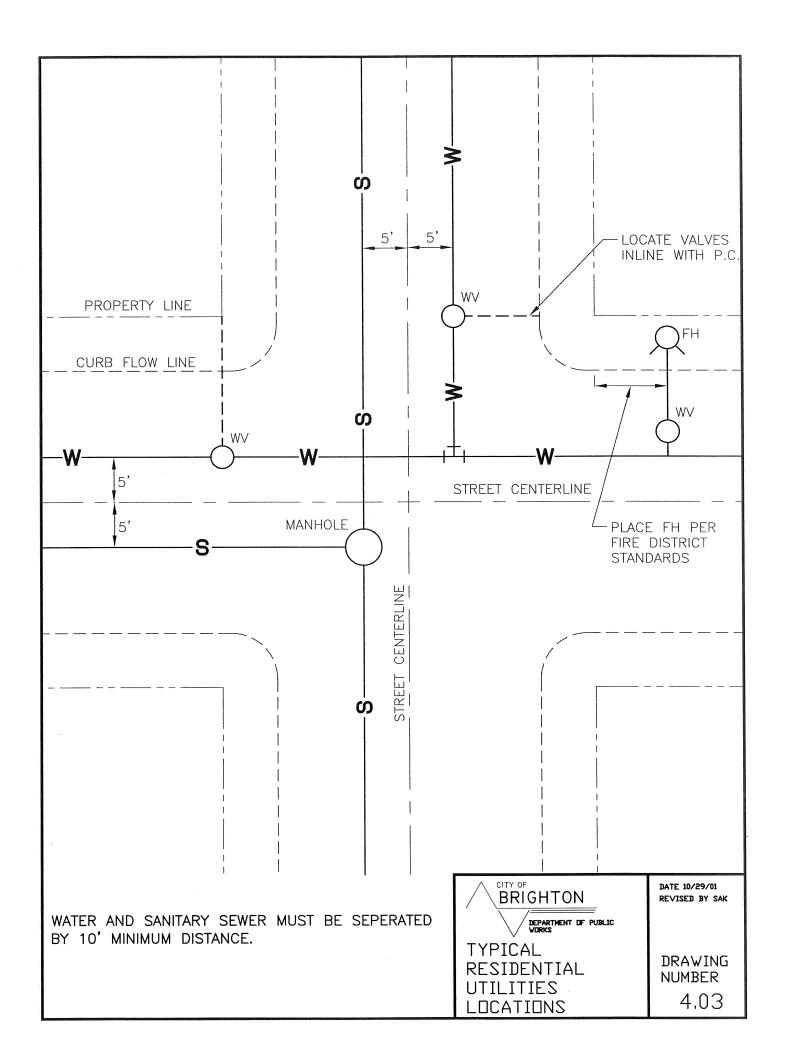
Services shall enter lots at a perpendicular angle from the mains except in cul-de-sacs.

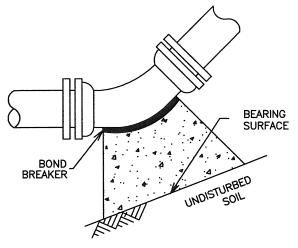
Place "V" on the curb face to mark water service locations and place a "X" on the curb face to mark sanitary sewer service locations.



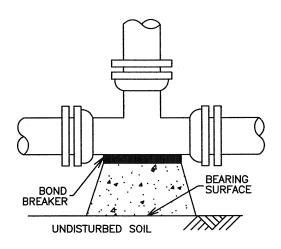
DATE 10/29/01 REVISED BY SAK

DRAWING NUMBER 4.02





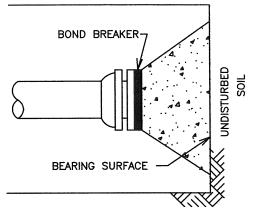
 $11\frac{1}{4}^{\circ}$ ,  $22\frac{1}{2}^{\circ}$ ,  $45^{\circ}$  AND  $90^{\circ}$  BENDS



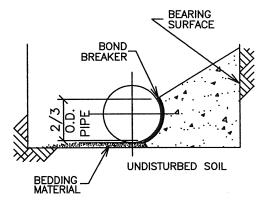
TEE

### NOTES:

- 1.) BEARING SURFACES SHOWN IN CHART ARE MINIMUM.
- 2.) BASED ON 150 PSI INTERNAL PIPE PRESSURE PLUS WATER HAMMER.
  4",6",8" AND 12" WATER HAMMER = 110 P.S.I.
  16",20' AND 24" WATER HAMMER = 70 P.S.I.
- 3.) SEE SECTION 6.42 AND SECTIONS 8.19 OF THE ENGINEERING STANDARDS.
- BASED ON 3,000 psf SOIL BEARING CAPACITY.
- 5.) NA = NOT APPLICABLE.



DEAD END

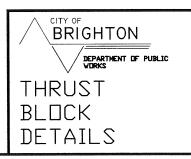


TYPICAL CROSS SECTION

# MINIMUM BEARING SURFACE AREA

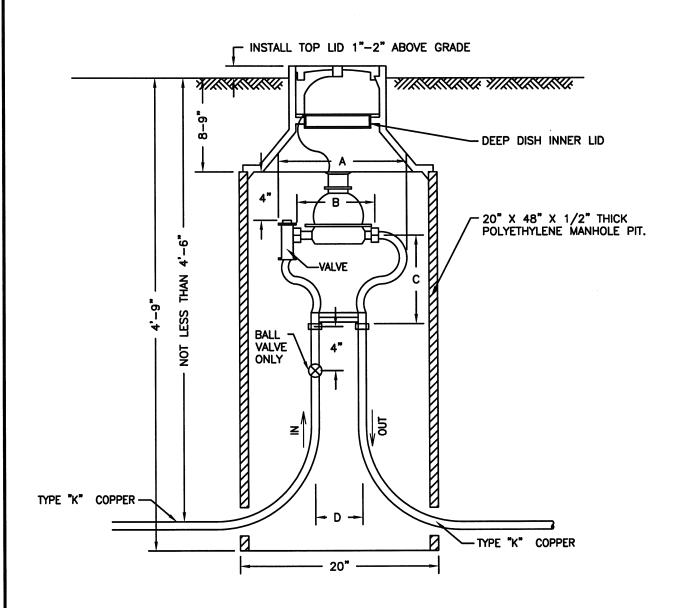
(IN SQUARE FEET)

	•											
SIZE	B	BENDS										
OF PIPE	22½°	45°	90°	DEAD ENDS								
6"	2.0	2.0	3.6	2.5								
8"	2.0	3.4	6.2	4.4								
10'	2.8	5.5	10.2	7.2								
12"	4.0	7.9	14.5	10.3								
14"	5.4	10.7	19.6	13.9								
16"	7.0	13.8	25.4	18.0								



DATE 10/30/01 REVISED BY SAK

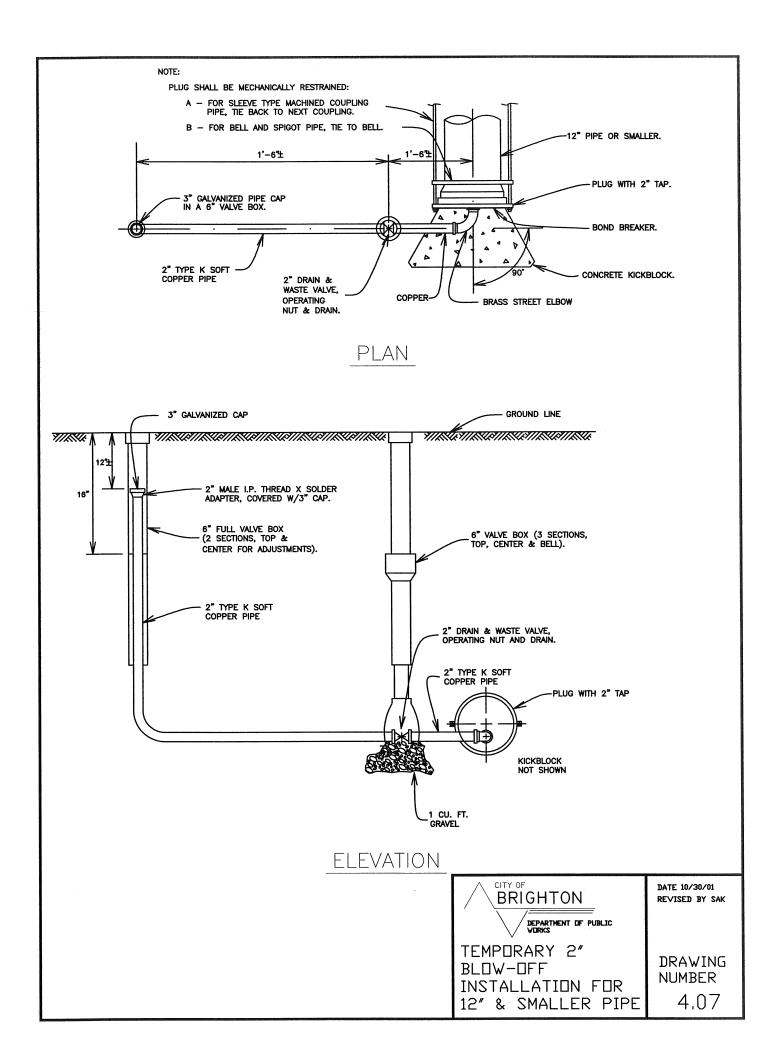
DRAWING NUMBER

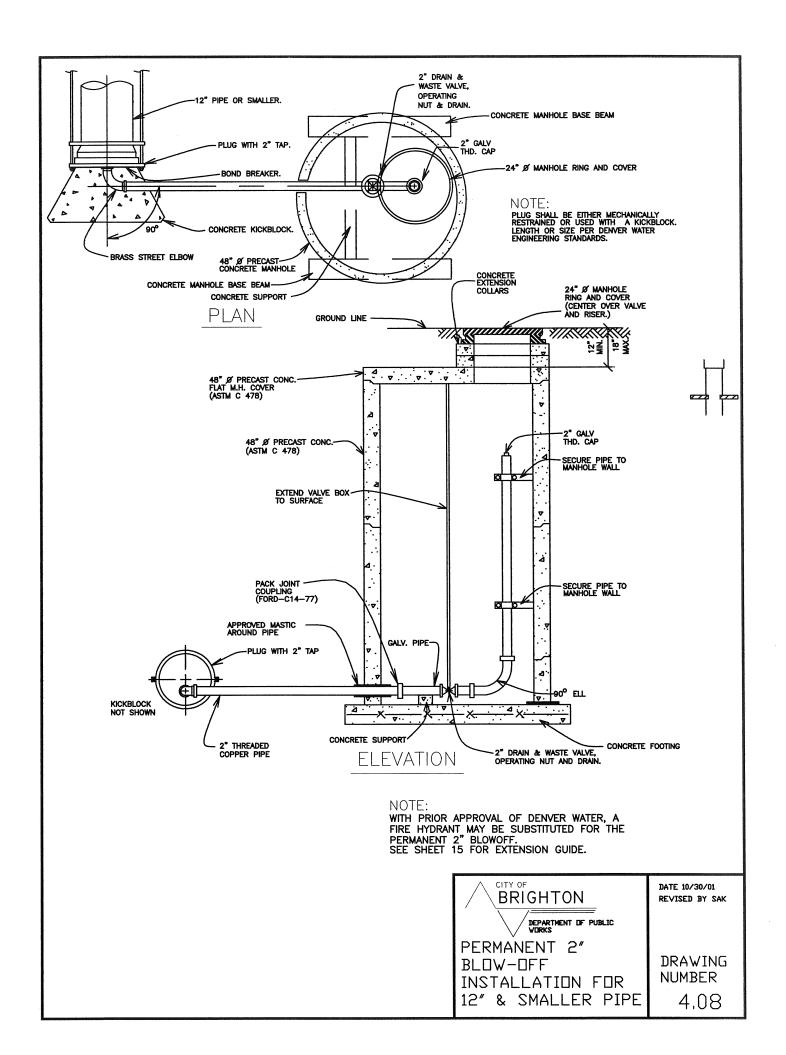


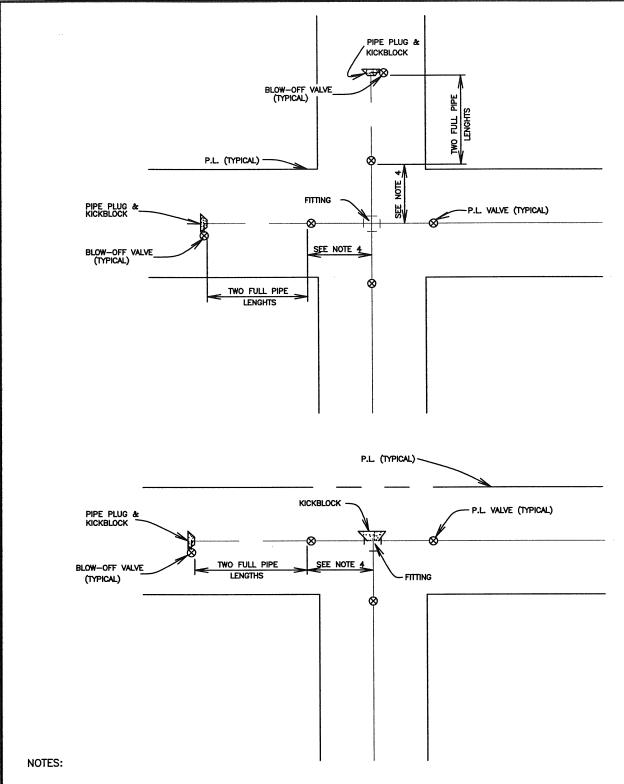
METER SIZE	A	В	С	D
3/4" x 3/4"	14-1/4"	9"	9 <b>*</b> ±	5"
1"	17-1/4"	10-3/4"	10 <b>"</b> ±	6 <b>"</b>

PLACE METERS WITH A
MINIMUM SEPARATION OF 10'
MASONARY BASE FOR STABILITY
NOT FOR INSTALLATION IN
DRIVEWAYS

CITY OF BRIGHTON	DATE 10/2/02 REVISED BY AJW
DEPARTMENT OF PUBLIC WORKS	
METER INSTALLATION IN PIT FOR 3" & 1" SERVICES	DRAWING NUMBER 4.06





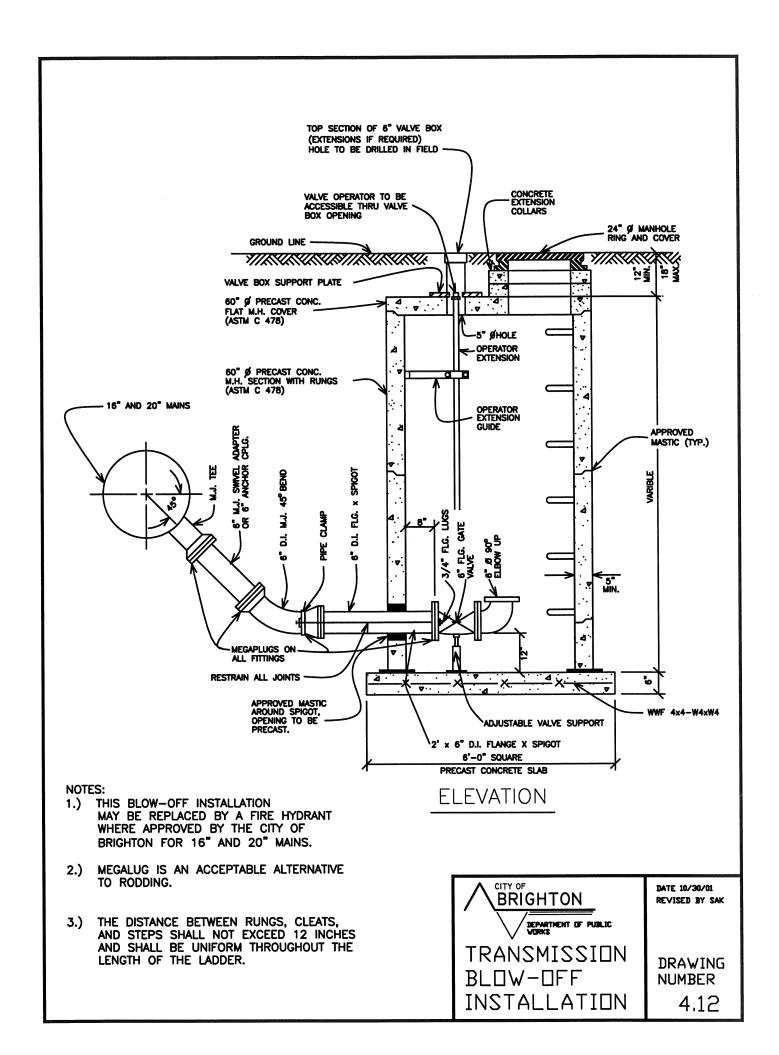


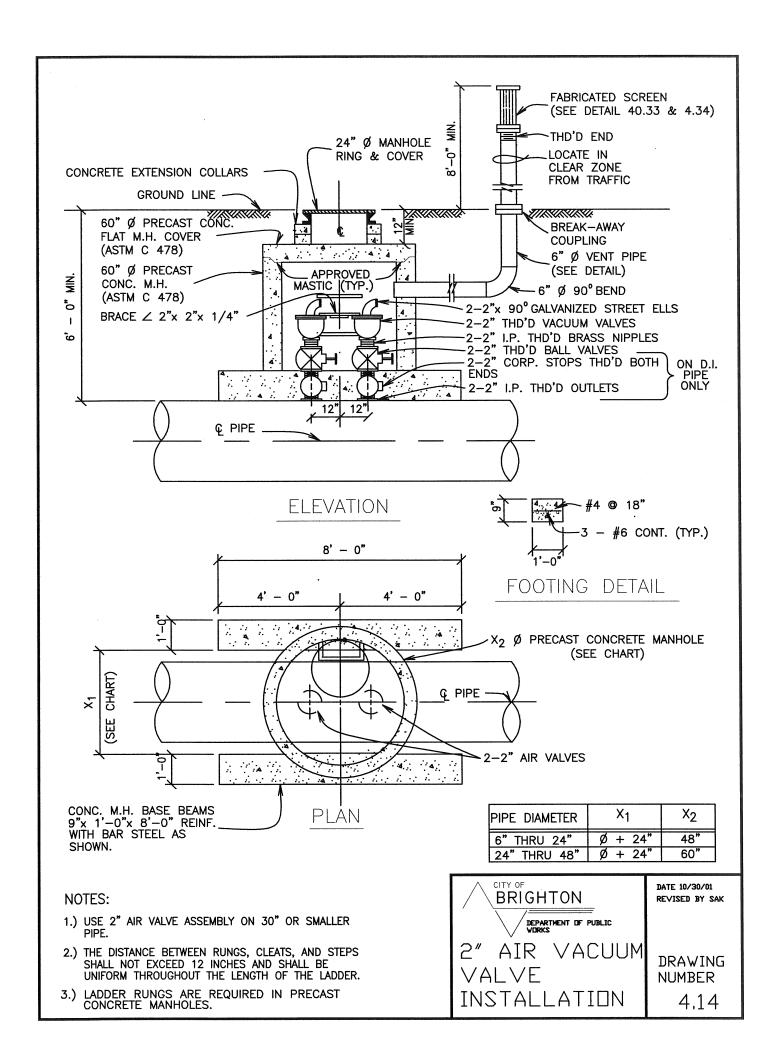
- 1- LAY PIPE FROM FITTING TO P.L.
- 2- INSTALL VALVE AT P.L.
- 3— STUB OUT TWO FULL PIPE LENGHTS FROM VALVE, PLUG END OF PIPE INSTALL BLOWOFF AND KICKBLOCK.
- 4— ALTERNATIVE TO NOTE 3: PROVIDE RESTRAINED JOINTS FROM VALVE TO FITTING AND ELIMINATE THE TWO FULL LENGTHS OF PIPE OUT OF VALVE AND TEMPORARY BLOW—OFF.



DATE 10/30/01 REVISED BY SAK

DRAWING NUMBER





# PIPE LENGTH OF RESTRAINED

24"	G	1				1	
	L	155		45°	12°		
	D				I	ı	
	G	H.S.		H.S.	M.S.	M.S.	
20"		132		39°	10,	3,	
	D	11/4"		3/4"	3/4"	3/4"	
	G	H.S.		M.S.	M.S.	M.S.	
16"		108°		32'	1' M.S. $34''_{4}$ 4' M.S. $34''_{4}$ 5' M.S. $34''_{4}$ 7' M.S. $34''_{4}$ 8' M.S. $34''_{4}$ 10' M.S. — 12'	2,	
	D	1"		1"	3/4"	- $  34$ 1' M.S. $34$ 2' M.S. $34$ 2' M.S. $34$ 3' M.S. $-$ 3'	
2	9	H.S.		M.S.	M.S.	M.S.	
12"	٦	,98		22,	,,	2,	
	D	3/4"		3/4"	3/4"	3/4"	
	G	M.S.		M.S.	M.S.	M.S.	
, ,		,09		18'	5,	1,	
	Q	3/4"		3/4"	3/4"	3/4"	
	9	M.S.		M.S.	M.S.		
6,	٢	45,		13,	4,		
		3/4"		3/4"	3/4"	1	
	9	M.S.		M.S.	M.S.	-	
4	١	30,		<b>.</b> 6	1,	1	
		$34^{\circ}$ 30' M.S. $34^{\circ}$ 45' M.S. $34^{\circ}$ 60' M.S. $34^{\circ}$ 86' H.S. 1" 108' H.S. 1 $14^{\circ}$ 132' H.S. — 155'		$34^{\circ}$ 9° M.S. $34^{\circ}$ 13' M.S. $34^{\circ}$ 18' M.S. $34^{\circ}$ 25' M.S. 1" 32' M.S. $34^{\circ}$ 39' H.S. — 45'	34"	1	
PIPE SIZE	FITTING		OR VALVE	45° BEND	22½BEND	11½°BEND	

ENGTH OF RESTRAINED PIPE MEASURED EACH WAY FROM VALVES AND BENDS.

D=DIAMETER, L=LENGTH, G=GRADE M.S.=MILD STEEL, H.S.=HIGH STRENGTH.

NOTES:

MINIMUM 4.5' GROUND COVER REQUIRED. BASED ON 150 PSI INTERNAL PRESSURE.

= MILD STEEL ROD ASTM A36. s. S

TEE

PLUG

= HIGH STRENGTH ROD ASTM A193 GRADE B7. E.S. (...)

NUTS SHALL BE ASTM A307 GRADE A OR B HEXAGON HEAVY SERIES, HIGH STRENGTH NUTS SHALL BE ASTM A194, GRADE 2H.
SEE TIE ROD DETAIL DRAWING. ALSO, TIE ROD COUPLING DETAILS, CLAMP DETAILS AND SET CLAMP DETAILS. 8.

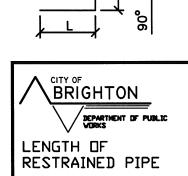
VALVE

BEND

LENGTH REFERS TO THE AMOUNT OF PIPE WHICH MUST BE RESTRAINED TOGETHER AND IS NOT NECESSARILY THE LENGTH OF THE RODS. LENGTH OF RESTRAINED PIPE CHART IS ALSO FOR THE LENGTH OF JOINT 10.) 6

RESTRAINT FOR MEGALUGS.

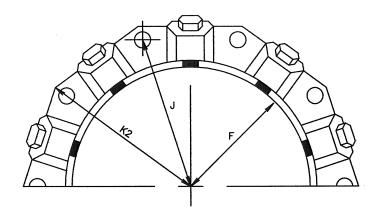
TEE AND CROSS MUST BE RESTRAINED IN ALL APPLICABLE DIRECTIONS. 11.)



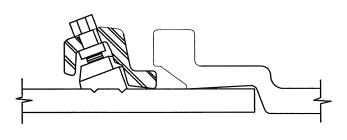
DATE 10/29/01 REVISED BY SAK

BENDS

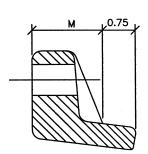
DRAWING NUMBER 4.15



# MECHANICAL JOINT RESTRAINT



WEDGE DETAIL



BOLT HOLE DETAIL

# DIMENSIONS

	NOMINAL PIPE SIZE	NO. OF BOLTS	NO. OF WEDGES	K2 INCHES	J INCHES	F INCHES	M INCHES	
	4*	2	2					
P	6"	6	3	11.12	9.50	7.00	0.88	P
$\vee$	8"	6	4	13.37	11.75	9.15	1.00	
	10"	8	6	15.62	14.00	11.20	1.00	
	12"	8	8	17.88	16.25	13.30	1.25	
	4*	4	2					
	6"	6	3	11.12	9.50	7.00	0.88	
	8"	6	4	13.37	11.75	9.15	1.00	
	10"	8	6	15.62	14.00	11.20	1.00	
	12"	8	8	17.88	16.25	13.30	1.25	

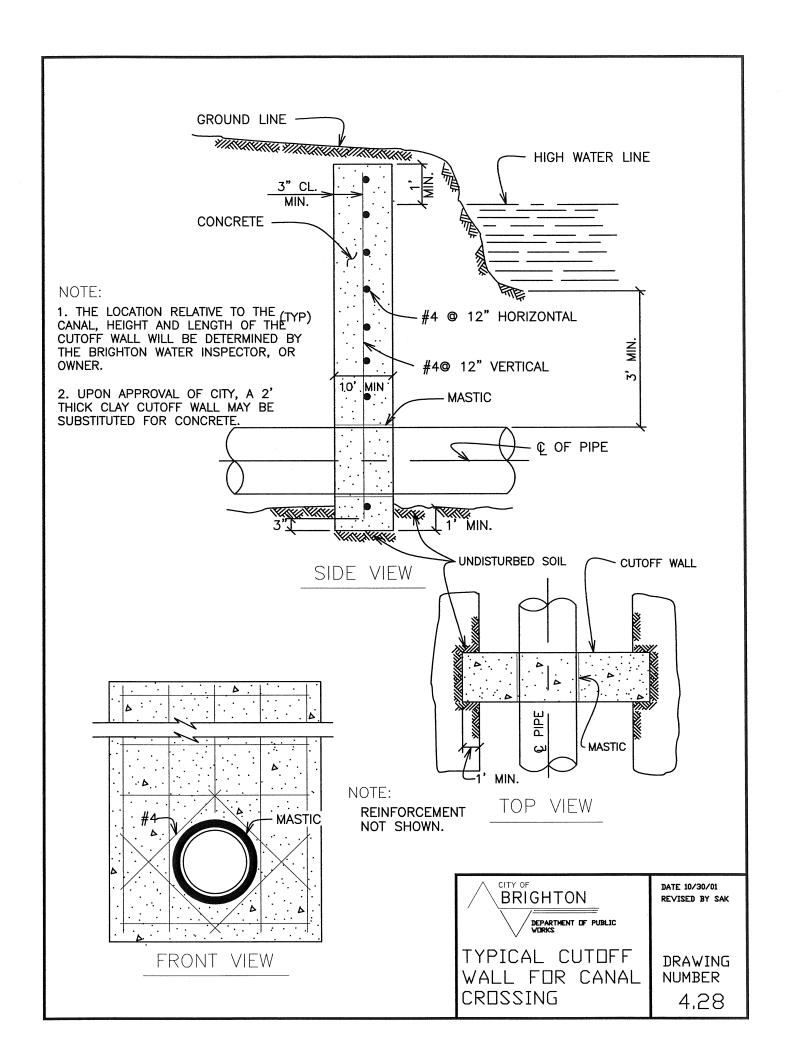
### NOTES:

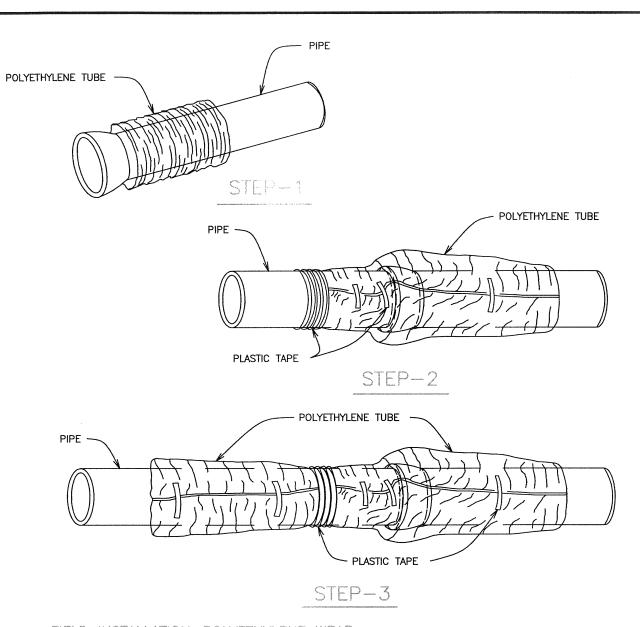
- 1.) REFER TO MS-28 OR SECTION 6.05 PARAGRAPH D.
- 2.) DIMENSIONS FOR 16" AND 20" D.I. PIPE NOT SHOWN.
- OTHER MECHANICAL JOINT RESTRAINT DEVICES MUST BE APPROVED BEFORE INSTALLATION.



MECHANICAL JOINT RESTRAINT DETAILS DATE 10/30/01 REVISED BY SAK

DRAWING NUMBER

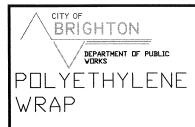




## FIELD INSTALLATION-POLYETHYLENE WRAP

- STEP-1 PLACE TUBE OF POLYETHYLENE MATERIAL AROUND PIPE PRIOR TO LOWERING PIPE INTO TRENCH.
- STEP-2 PULL THE TUBE OVER THE LENGTH OF THE PIPE. TAPE TUBE TO PIPE AT JOINT. FOLD MATERIAL AROUND THE ADJACENT SPIGOT END AND WRAP WITH THREE CIRCUMFERENTIAL TURNS OF TWO-INCH WIDE PLASTIC TAPE TO HOLD PLASTIC TUBE AROUND SPIGOT END.
- STEP-3

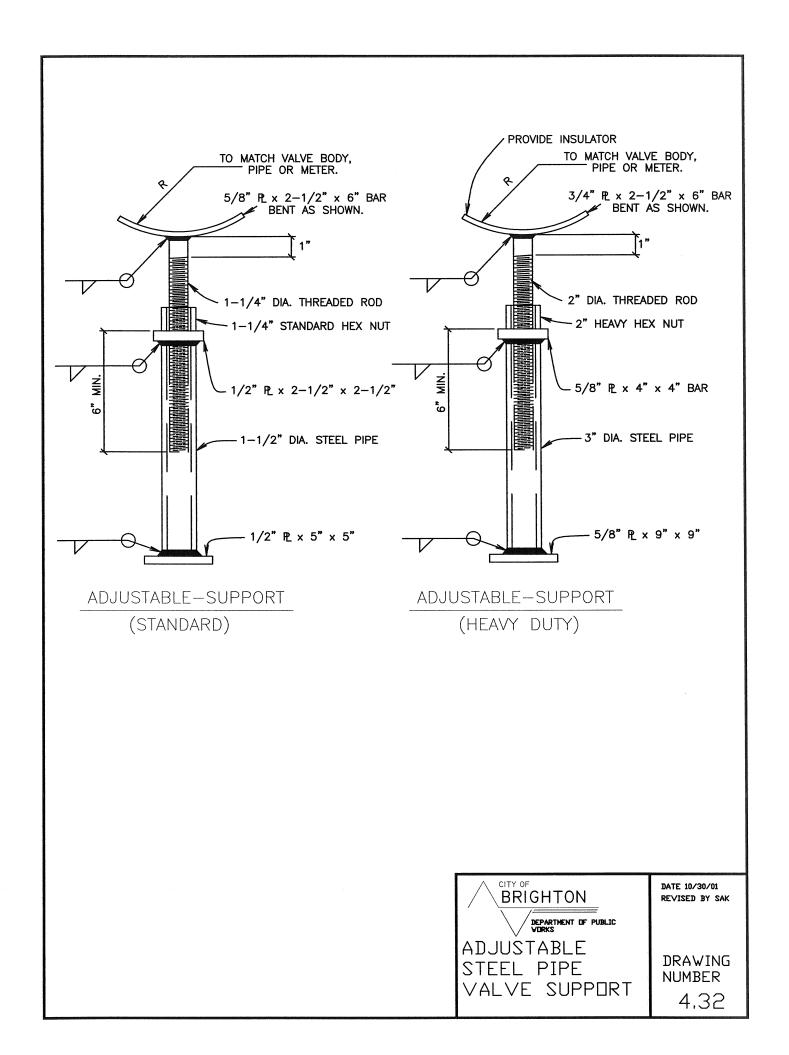
  ADJACENT TUBE OVERLAPS FIRST TUBE AND IS SECURED WITH PLASTIC ADHESIVE TAPE. THE POLYETHYLENE TUBE MATERIAL COVERING THE PIPE WILL BE LOOSE. EXCESS MATERIAL SHALL BE NEATLY DRAWN UP AROUND THE PIPE BARREL, FOLDED INTO AN OVERLAP ON TOP OF THE PIPE AND HELD IN PLACE BY MEANS OF PIECES OF THE PLASTIC TAPE AT APPROXIMATELY THREE TO FIVE FOOT INTERVALS.

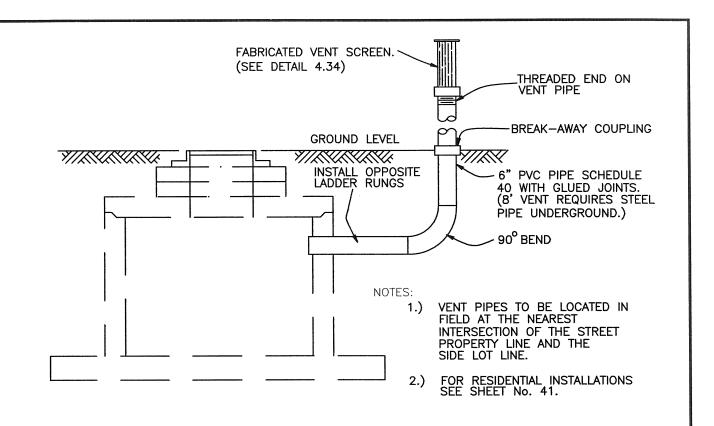


DATE 10/30/01 REVISED BY SAK

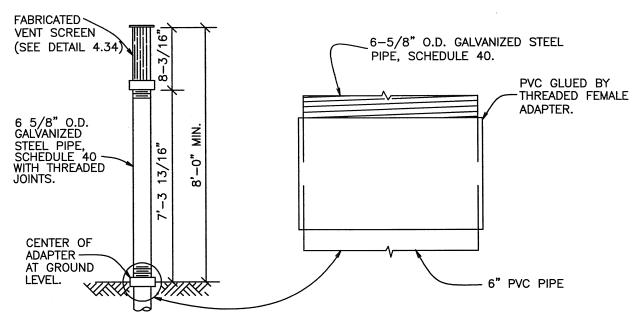
DRAWING NUMBER

4,31



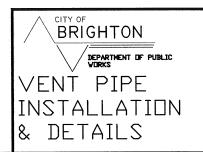


# VENT PIPE INSTALLATION



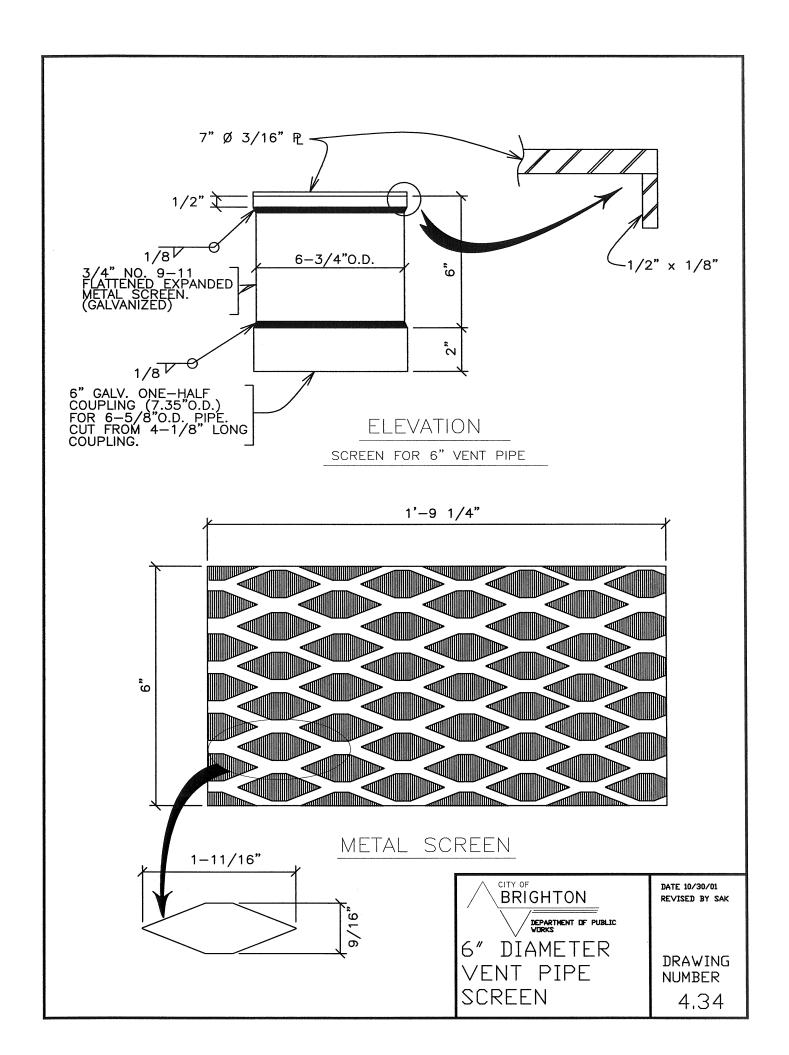
VENT PIPE AND BREAK-AWAY COUPLING DETAILS

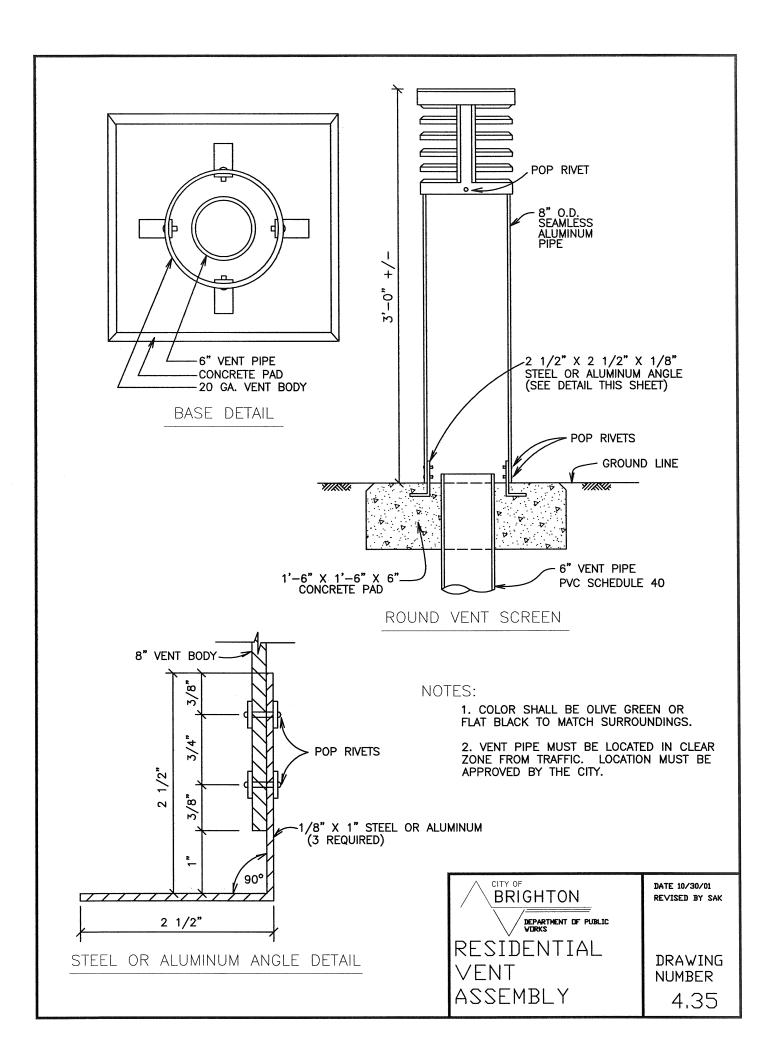
NOTE: VENT PIPE MUST BE LOCATED IN CLEAR ZONE FROM TRAFFIC. LOCATION MUST BE APPROVED BY THE CITY.

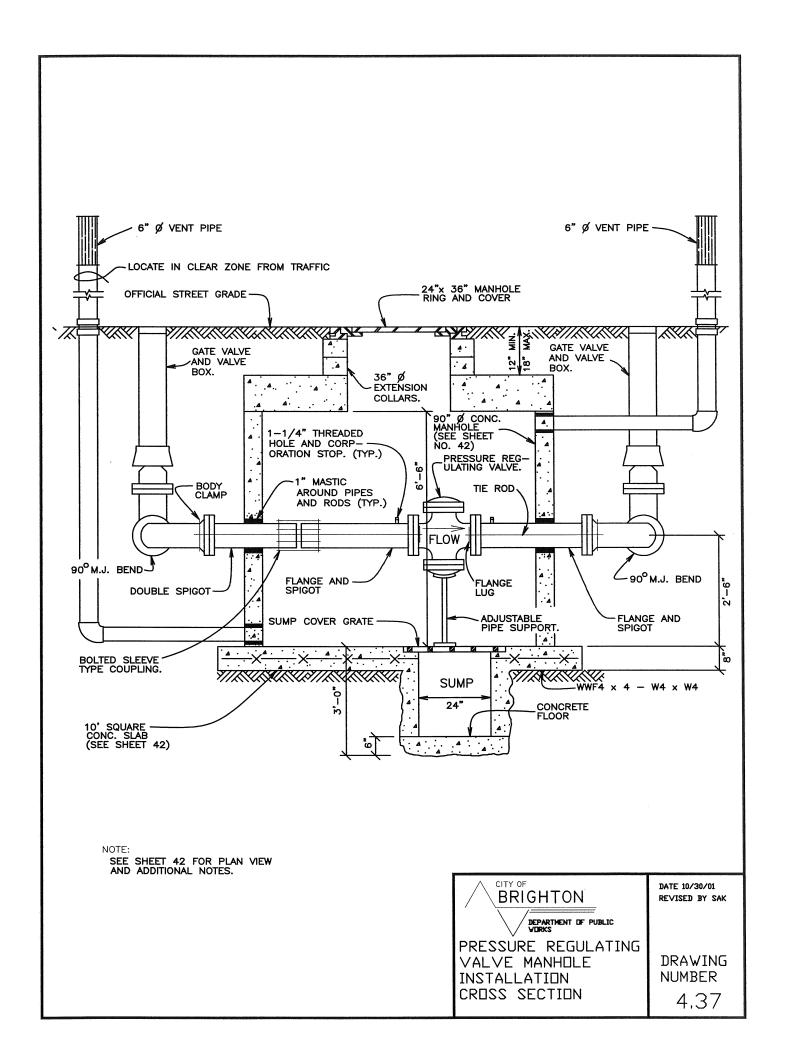


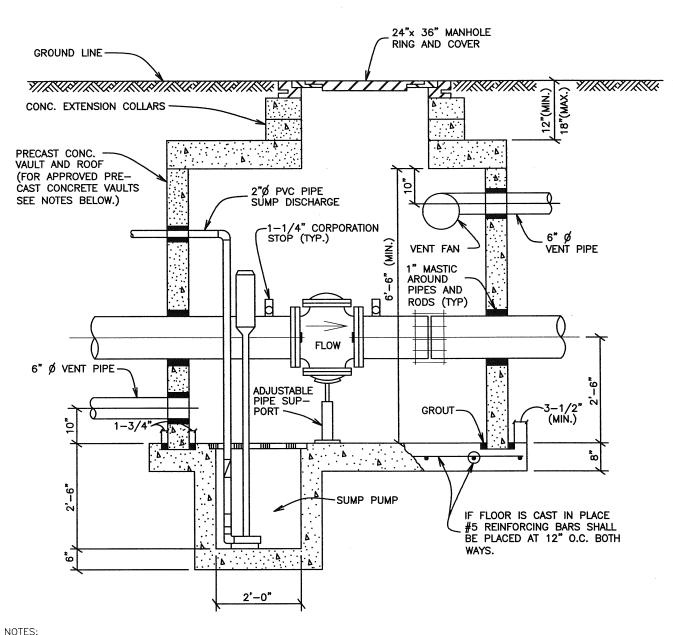
DATE 10/30/01 REVISED BY SAK

DRAWING NUMBER

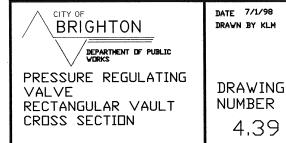


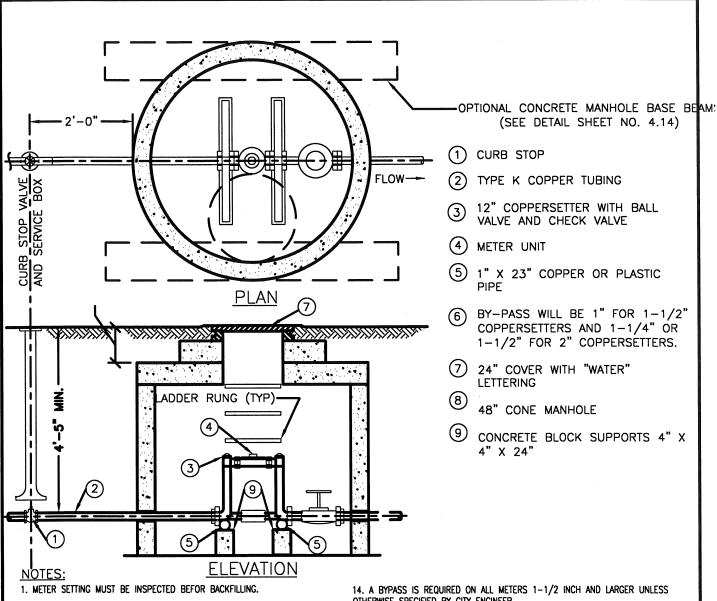






- 1.) APPROVED PRECAST CONCRETE VAULTS: AMCOR CONC. INC.— 10' X 10' X 7' 7080M, 7080—12. ADAMS CITY MFG.—11' X 12', 6' X 8'—6", 7' X 12'—6"
- 2.) A PERMIT IS REQUIRED FOR SUMP PUMP DISCHARGE TO STORM SEWERS.
- 3.) SEE SHEET 4.38 FOR PLAN VIEW AND ADDITIONAL NOTES.





- 2. BYPASS IS TO BE INSTALLED UNLESS OTHERWISE SPECIFIED.
- 3. NO CONCRETE TO BE LAID IN FLOOR OF METER PIT.
- 4. PIPING SHALL BE TYPE "K" COPPER.
- 5. IF GROUND CONDITIONS ARE UNSTABLE, THE ENGINEER MAY REQUIRE THAT FOOTINGS BE INSTALLED.
- 6. THE WORD "WATER" SHALL BE CAST ON THE LID.
- 7. 3/4" OR 1-1/2" ROCK SHALL BE PLACED IN THE FLOOR OF METER PIT 6"
- 8. SUPPORT UNDER METER MAY BE BRICK OR CONCRETE BLOCK.
- 9. COMPRESSION JOINTS MUST BE USED INSIDE VAULT.
- 10. LOCATION OF METER TO BE APPROVED BY THE CITY ENGINEER OR WATER SUPERVISOR.
- 11. ALL SETTINGS MUST BE INSPECTED BY THE CITY.
- 12. IF THE STREET OR GROUND IS NOT TO FINAL GRADE AT THE TIME OF INSTALLATION OF THE METER, THE OWNER MUST RAISE OR LOWER THE METER WHEN THE FINAL GRADE IS ESTABLISHED. SEE STANDARD DETAIL.
- 13. JOINTS AND GALVANIZED PIPING SHALL NOT BE ALLOWED INSIDE THE METER SETTING.

- OTHERWISE SPECIFIED BY CITY ENGINEER.
- 15. THE SERVICE LINE THROUGH AND ON BOTH SIDES OF THE METER PIT MUST BE OF TYPE K COPPER PIPE.
- 16. NO CONNECTIONS SHALL BE MADE IN THE METER PIT. ANY CONNECTIONS MUST BE MADE MORE THAN 5 FEET FROM THE METER PIT ON THE DOWNSTREAM SIDE.
- 17. OTHER METER SETTINGS:

SETTINGS OF METERS OTHER THAN SHOWN AND DETAILED HEREIN SHALL BE CONSIDERED AS NON-STANDARD AND SHALL REQUIRE APPROVAL OF PROPOSED PIPING LAYOUT, METER SETTINGS AND STRUCTURAL DESIGN OF VAULT FOR EACH SEPARATE INSTALLATION.

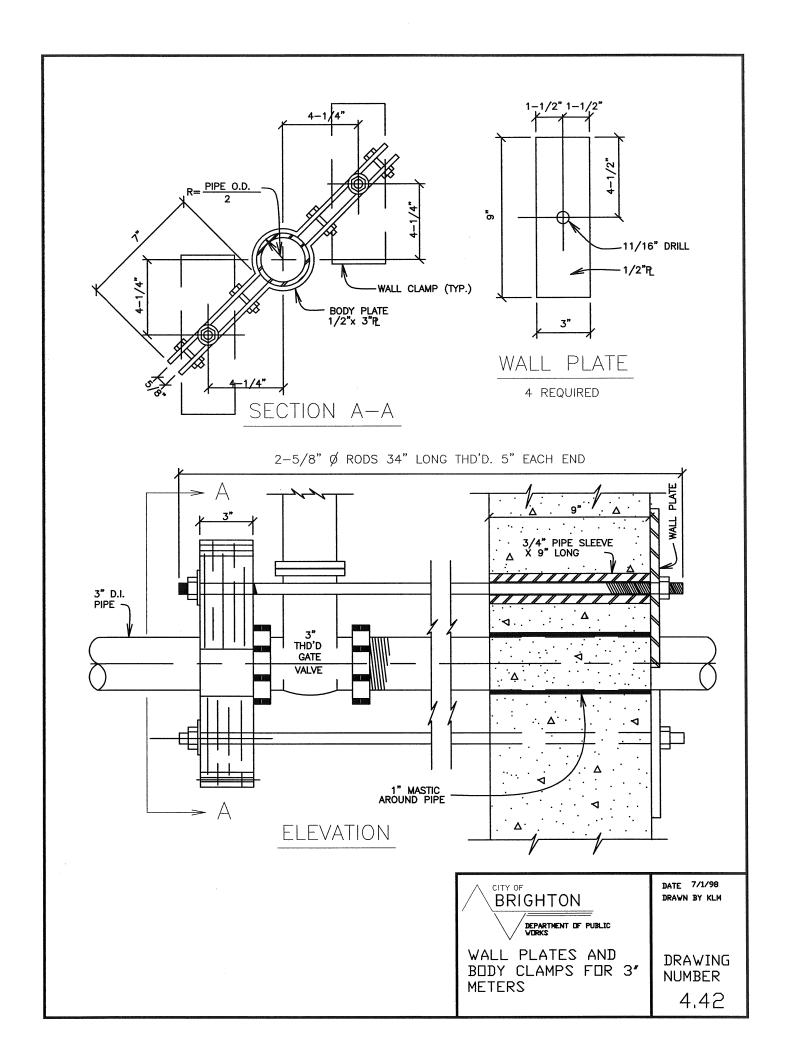
18. BACKFLOW PREVENTION DEVICES WILL BE REQUIRED.

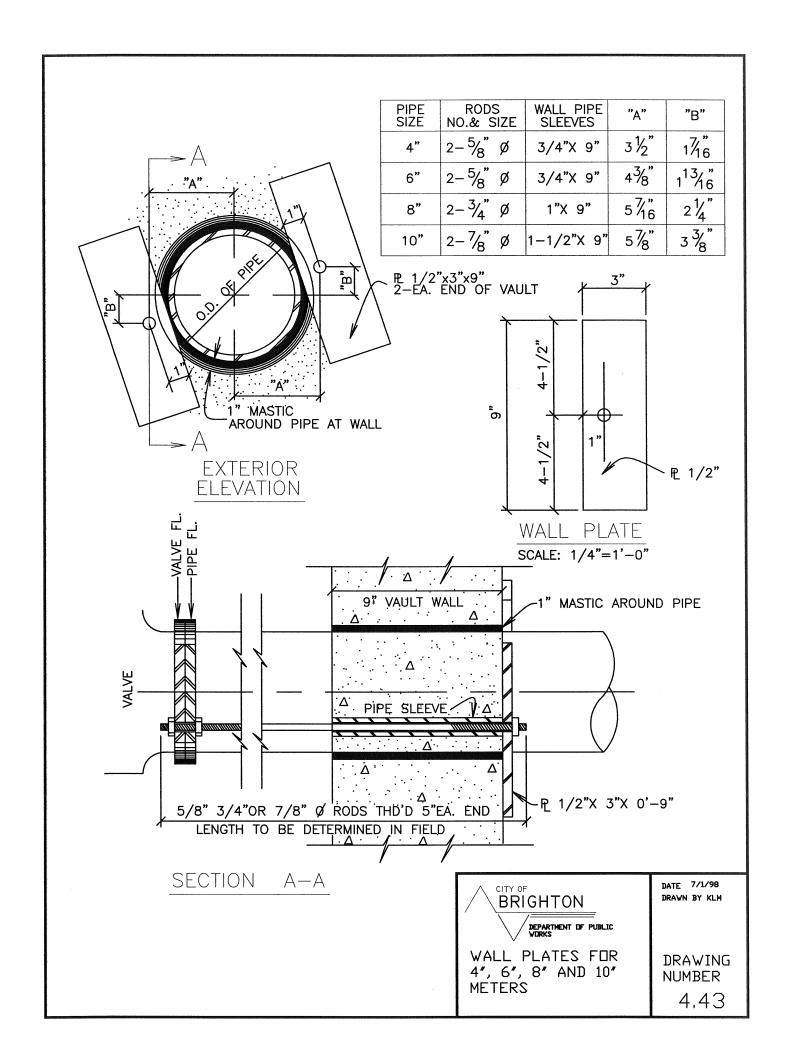


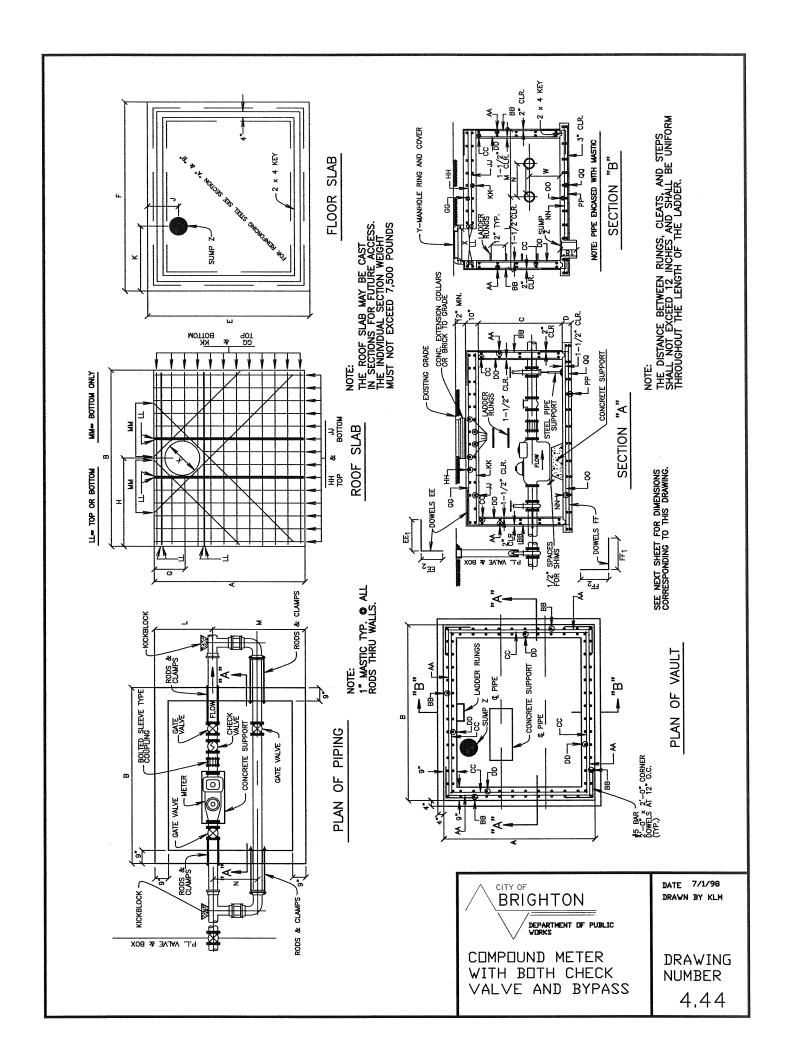
DATE 10/30/01 REVISED BY SAK

METER INSTALLATION IN MANHOLE FOR 1-1/2" DR 2" SERVICES

**DRAWING** NUMBER 4.41



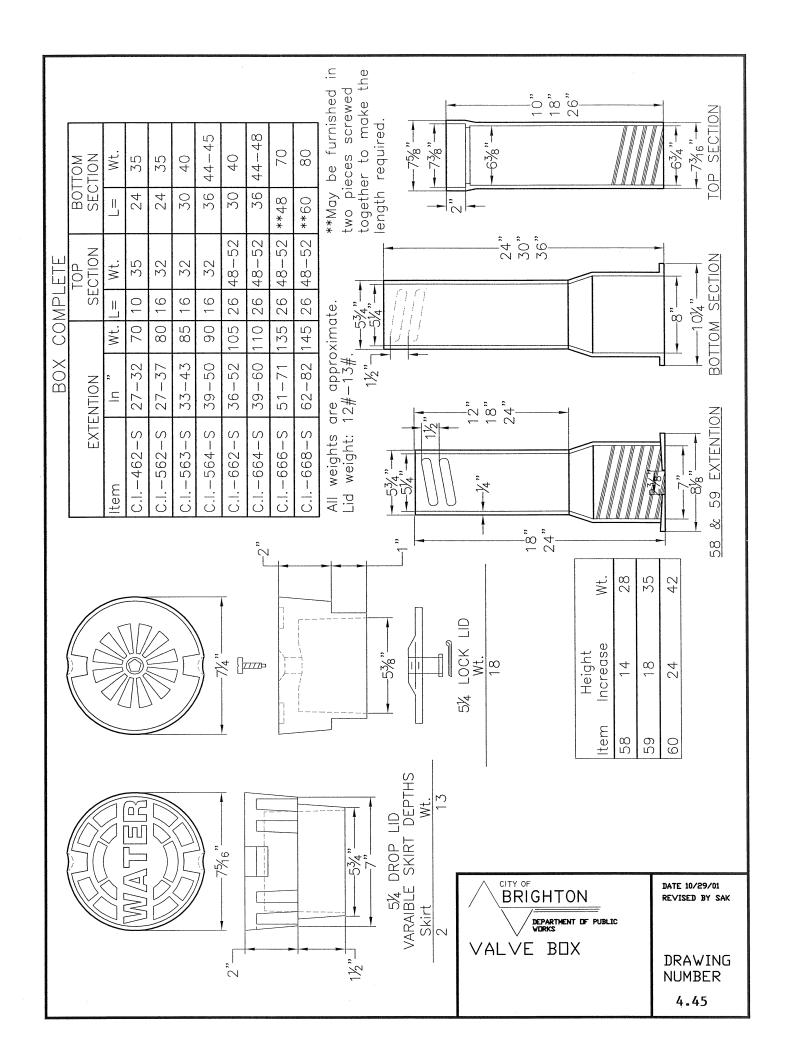


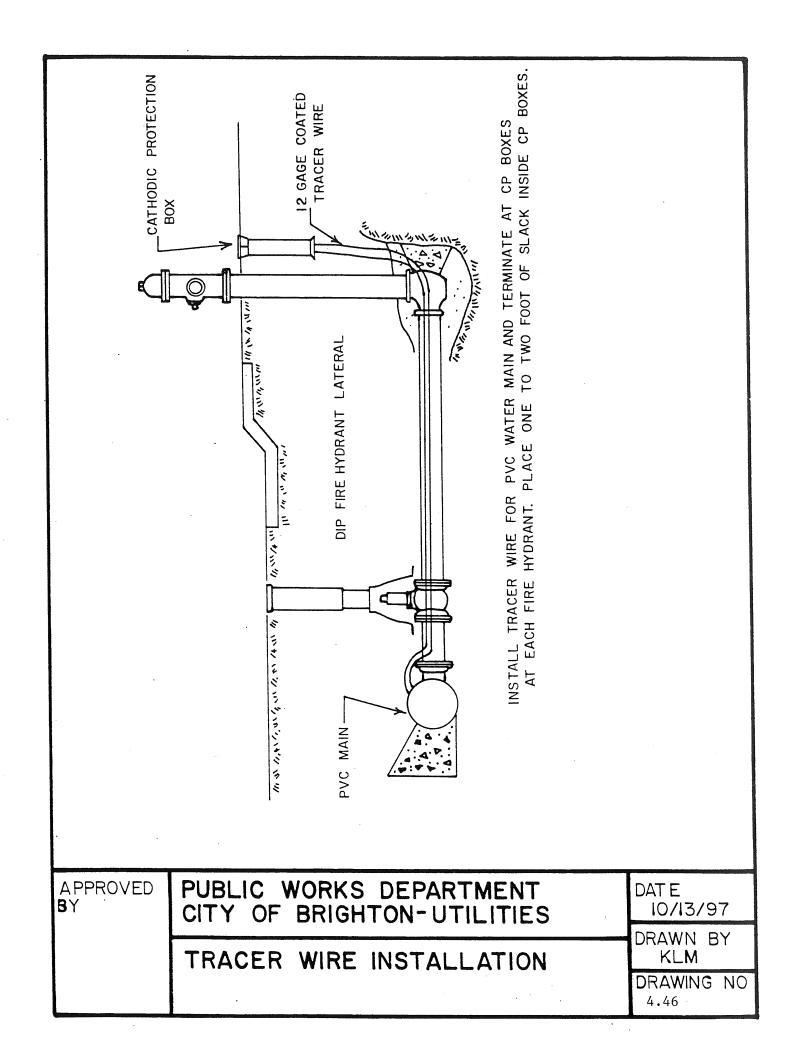


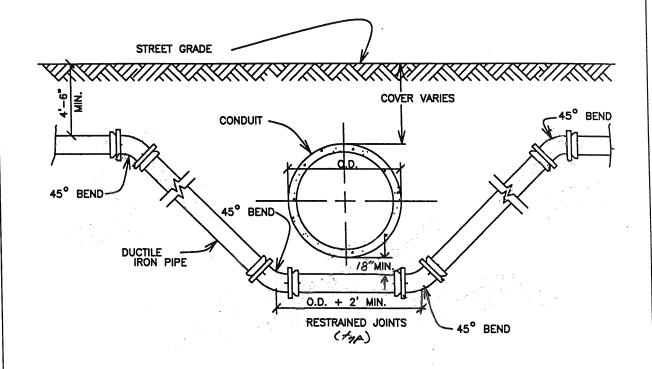
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		вору с		1							SLAB	Ф	BAR		1					No.5	ξ. 0.5				
		AND BC			NGS.		NGS.		ß.					FLOOR	0	DIST.	-, - -,		٩ -		٠ م		1. 0.	• •	
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					5/16"x		5/16"x		×						Ħ	<b>40</b> 1							No.5	No.5	
		E SHEET	E SHEET						E 3/8″x						폿	DIST.	1,-0,		٩		10		0,0	0,-0	
		SEE	SE		NSE		USE		SE					8	ᅩ	BAR	No.7		No.7		No.7		¥o.8	8.08	
SUMF	2	10"	10		9		1.		*9 					SLAB		DIST.	1'-0"		9		1'-0"		1°-0	1,0	
MANHOLE SUMF	٨	24"x36"	24"x36"		24"x36"		24 x36"		24"1.36"					ROOF	3	BAR	No.7		No.7		No.7		No.7	No.7	
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	ш	10'-8"	10'-8"		11,-8		14'-8"		14'-8"				USED		8	DIST.							1°-0"	10*	
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E 0	5 <u>ద</u>	Ĺ			_		_						δ   P			¥	No.4		No.4		¥0.4	_	No.4	No.4	<u> </u>
METER SIZE		'n	*4				*8		10,				NOTE: ARCO PRECAST VAULT 7080-M		METER SIZE		35		*4		<b>*</b> 0		æ	10*	

COMPOUND METER DIMENSIONS

\*NOTE: DIMENSION C IS A MINIMUM SUGGESTED HEIGHT. DRAWING ND,  $4.44\,\mathrm{A}$ 







### NOTES:

- 1.) LENGTH OF EXTENSION OF PIPE AND RESTRAINED JOINTS SHALL BE IN ACCORDANCE WITH THESE ENGINEERING STANDARDS.
- 2.) ALL WATER MAINS TWELVE (12") INCHES OR SMALLER, SHALL BE DUCTILE IRON.
- 3.) CATHODIC PROTECTION SHALL BE AS REQUIRED IN ACCORDANCE WITH THESE ENGINEERING STANDARDS.
- 4.) A BORED CROSSING MAY BE REQUIRED BY THE ENGINEER.

OPEN CUT CROSSING
BENEATH CONDUIT

SCALE: \_\_NONE \_\_ DATE: \_SEPTEMBER\_ 1997

DRN: \_ \_ \_ \_ TR: \_ \_ \_ \_ CK: \_ \_ \_ \_
APP: \_ \_ \_ \_ \_ 4.47